

REMARKS

Claims 9-10, 13-14 and 17-320 are now in this application.

By the amendment claim 9 has been revised so that it more clearly recites the structure of the invention.

Claims 11-12 and 15-16 have been canceled.

Also by this amendment, new claims 29-32, which are product-by-process claims, have been added. In view of the nature of this invention, counsel believed that these new claims recite the invention in a fashion which varies from their recitation in claims 9-10 and 13-14, and that this difference provides an appropriate means for reciting the invention of this application.

The examiner rejected the apparatus claims 9-10 and 13-14 as anticipated by Schreiner et al. Applicant does not agree with this rejection for the following reasons.

From the Schreiner et al reference, a piezoelectric actuator that is provided with an insulating coating is indeed known; the insulating coating is a so-called sintered skin. However, this skin is not created until the sintering process. Moreover, the reference has no indication whatsoever that the insulating layer is applied while the piezoelectric stack is in its green state, before sintering. And even further, the actual disclosure of Schreiner et al never states that a layer is added. Thus, in the absence of any disclosure on the part of the reference, it is not possible to determine how the skin is formed, and it may be possible that, for example, the material of the individual layers of the piezoelectric stack somehow migrate outwardly and form the sinter skin. If this is in fact the situation, then the insulation layer

will have depressions where the inner electrodes are positioned, so that the insulation layer will not have a smooth surface as does applicant's.

And further, the disclosure Schreiner et al never states, and thus it is not clear and only an improper assumption on the part of the examiner, that the insulation layer is a layer which is comprised of the same material as the material of the piezoelectric layers of the actuator, as is recited in the claims.

Claims 29-32 have been added, which recite the invention in a different format, commonly referred to as a product-by-process format.

While to meet these claims, all that the examiner needs to show is that the product is known, it is applicant's position that this is not the situation, at least not with regard to the presently cited art.

None of the cited prior art teaches an apparatus which has a piezoelectric stack, having a coating which consists of the same material as the piezoelectric material itself, with this structure being created prior to sintering the stack as recited in claim 29.

Claim 30 goes on from this point to recite that the structure is then sintered. Again, the cited prior art, and especially the reference to Schreiner et al , does not teach this structure.

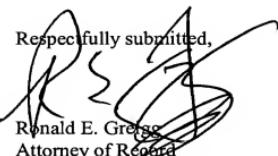
Claim 31 goes on to add that after the coating is sintered, portions of the sintered coating are removed. Again, it is applicant's position that the reference to Schreiner et al does not teach this structure, since there is not teaching in Schreiner et al of coating the piezoelectric stack with material which is the same as the material of the piezoelectric layers.

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And further, in the last 4 lines of paragraph 6, Schreiner et al disclose that any removal of the sinter skin, whatever it happens to be made of, is done before sintering so as to make removal easier. Clearly, Schreiner et al do not teach the structure as now recited in claim 31.

Claim 32 goes on to add that after portions of the coating have been removed, outer electrodes are added. Here again, since it cannot be determined exactly what the sintered skin of Schreiner et al is made of, it cannot be said with any certainty at all that the structure taught by Schreiner et al is the same as recited in applicant's claims.

For all of the above reasons, whether taken singly or in combination with each other, entry of this amendment and allowance of the claims are courteously solicited.


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